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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/280,518	04/05/1999	KENSUKE FUJIWARA	32739M008	5926

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BEVERIDGE DEGRANDI WEILACHER & YOUNG
SUITE 800 1850 M STREET N W
WASHINGTON, DC 20036

EXAMINER

PHAM, HAI CHI

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/280,518

Applicant(s)

FUJIWARA, KENSUKE

Examiner

Hai C Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE & Amendment filed 01/14/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Prosecution Application

1. The request filed on 01/04/04 for a Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/280,518 is acceptable and a RCE has been established. An action on the RCE follows based on the latest Amendment/Reply submitted on 01/04/04. It is noted that the Amendment/Reply filed on 12/15/03 after the final rejection, which includes the introduction of the new claim 14, has not been entered per Advisory Action issued on 01/13/04, and the new claim 14 is not considered accordingly.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Acknowledged prior Art (referred hereinafter as AAPA) in view of Arevalo (U.S. 6,104,986) and Sugiyama et al. (U.S. 5,737,665).

AAPA discloses an iterative algorithm for determining a particular value (maximum laser intensity) for a particular constant value (dark potential of the photoreceptor surface), wherein a photoreceptor (1) is exposed with the maximum laser

intensity and measured to provide information so as to determine whether the measured value matches the constant value.

However, AAPA does not suggest the claimed two-stage algorithm, wherein the second stage of optimization includes the repeated and converging division of intensity into intervals.

Arevalo clearly discloses the claimed algorithm in general in Fig. 4, which includes the first detecting step with the input value range being divided by half to obtain a first interval, and the second detecting step in which the optimum input value obtained in the first detecting step is further divided by half such that the second interval is smaller than the first interval. While Arevalo does not disclose application of the algorithm to laser intensity adjustment, the disclosure is reasonably pertinent to the claimed invention since it solves the same problem of determining the optimal value of a variable for a given constant variable in the same manner as Applicant. The purpose of implementation of the algorithm is to reduce the length of an optimization process, as suggested in the Background and Summary of the Arevalo disclosure. Further, the AAPA and Arevalo prior art disclosures considered together suggest that the Arevalo algorithm is faster in optimizing than the AAPA algorithm. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the algorithm disclosed by Arevalo in combination with exposure and measurement disclosed by AAPA for the purpose of reducing the length of optimization in adjustment of the laser intensity for a particular potential. Setting of laser intensity

greater than a suitable maximum intensity is suggested since the tested value is suggested to always be within the range being tested (see column 5, lines 44-67).

On the other hand, although AAPA discloses the exposure of the photoreceptor surface being performed repeatedly with further adjustment of the maximum intensity of the laser beam such that the measurement of the residual potentials can be made (Fig. 5), AAPA does not expressly disclose the plurality of exposed patch portions being rectangular in shape and spaced apart from each other on the photoreceptor surface.

However, it is well known in the printing art that the calibration test patterns are formed on the photoreceptor surface as rectangular patches and that the individual patches are spaced apart from each other as evidenced by Sugiyama et al., which teaches a plurality of rectangular test patterns being formed on the surface of the drum (col. 3, lines 21-32) (Fig. 4), each pattern being separated from the other such that the density measurement of each pattern can be accurately performed.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a plurality of rectangular test patterns separated in space as taught by Sugiyama et al. in the modified device of AAPA. The motivation for doing so would have been to allow easy detection and reading of the test patterns as well as accurate measurement of the residual potentials.

Response to Arguments

4. Applicant's arguments filed 01/14/04 have been fully considered but they are not persuasive.

With regard to Applicant's argument that Arevalo "is directed to a method and an apparatus for phase shifting" and that "[T]here is no suggestion in Arevalo that any teaching therein would have any benefit, or indeed any application, in a method for adjusting laser exposure intensity in an image forming apparatus", the examiner respectfully disagrees. Arevalo clearly mentions at col. 5, lines 44-67 that the disclosed algorithm "is not tied to any particular application", indicating that the disclosed algorithm can be of benefit to any possible application, which would include the "potential correction process for an electrophotographic digital image forming apparatus" as claimed. Therefore, the combination of the AAPA and Arevalo is proper.

In response to Applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Indeed, by stating that the disclosed algorithm is not tied to any particular application and that the process of setting an optimal value by using the successive narrowing or dividing of an input range based on the performance at the test points, Arevalo teaches this to be known in any pertinent art to reduce the length of the optimization process.

Pertinent Prior Art

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamanaka et al. (U.S. 5,548,320) teaches a laser intensity adjusting method used in a printing apparatus, which includes a coarse adjustment followed by a fine adjustment such that an optimal value of the laser intensity is obtained, wherein during the coarse adjustment process the driving current is first set at an initial value and is successively incremented with a high interval, e.g., 100 mA, until the measured laser intensity is closed to the target value, at that time the fine adjustment process starts with the driving current being successively incremented at a lower pace, e.g., 2 mA, until the desired laser intensity is obtained.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2861

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM
PRIMARY EXAMINER

March 26, 2004